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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,733	03/22/2007	Masashi Nakamura	1592-0163PUS1	2225
2292	7590	10/23/2007		
BIRCH STEWART KOLASCH & BIRCH			EXAMINER	
PO BOX 747			SINGAL, ANKUSH K	
FALLS CHURCH, VA 22040-0747				
			ART UNIT	PAPER NUMBER
			2823	
			NOTIFICATION DATE	DELIVERY MODE
			10/23/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

## Office Action Summary

Application No.

10/589,733

Applicant(s)

NAKAMURA ET AL.

Examiner

Ankush k. Singal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 08/17/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kainosho et al.(US. 4,929,564).

Re. claim 1, Kainosho et al. discloses a vapor phase growth method for growing an epitaxial layer on a semiconductor substrate, comprising: previously measuring a resistivity of the semiconductor substrate at a room temperature; controlling a set temperature of the substrate depending on the resistivity at the room temperature such that a surface temperature of the substrate is a desired temperature regardless of the resistivity of the semiconductor substrate(Note: In column 2,lines 26-68 and column 3,lines 1-68, Kainosho et al. discloses how the resistivity is measured and temperature is controlled to prevent the deterioration of the homogeneity of the electrical properties across the wafer) ; and growing the epitaxial layer(Column 2,lines 51-55).

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Re. claim 2 as discussed above in claim 1, Kainosho et al. discloses all the limitations as discussed above in claim 1 including the semiconductor substrate is a compound semiconductor(Column 2,lines 26-35).

Re. claim 3 as discussed above in claim 2, Kainosho et al. discloses all the limitations as discussed above in claim 2 including the semiconductor substrate is an InP substrate(Column 2,lines 26-35).

Re. claim 4 as discussed above in claim 3, Kainosho et al. discloses all the limitations as discussed above in claim 3 including the semiconductor substrate is an Fe-doped InP substrate (Column 2,lines 26-35).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kainosho et al.(US. 4,929,564) in view of Thompson et al.(US 4,673,446).

Re. claim 5 as discussed above in claim 1, Kainosho et al. discloses all the limitations as discussed above in claims 1 except a molecular beam epitaxy is used to grow an epitaxial layer.

However, Thompson et al. discloses a molecular beam epitaxy is used to grow an epitaxial layer to be grown at a slow deposition rate.

Therefore it would have been obvious for one with ordinary skill in the art at the time the invention was made to provide Kainosho et al. structure with the MBE method of

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Thompson et al. for growing the epitaxial layer to grow the epitaxial layer at a slow deposition rate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ankush k. Singal whose telephone number is 5712701204. The examiner can normally be reached on monday-friday 7am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW SMITH can be reached on (571)272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ankush Singal

  
MICHELLE ESTRADA  
PRIMARY EXAMINER